APPLICATION

FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT I, **JERRY P. LENSING**, a citizen of the United States of America, have invented new and useful improvements in a MECHANIC'S CREEPER of which the following is a specification:

MECHANIC'S CREEPER

BACKGROUND

The present invention is directed to a wheeled creeper of the type used by mechanics working in a prone position underneath motor vehicles and other heavy equipment. More particularly, this invention is directed to a wheeled creeper having a brake means for releasably engaging the support surface and that can be selectively engaged to inhibit movement of the creeper. Furthermore, the present invention can be readily disassembled to effect a more compact form for storing and transporting.

Mechanics are often required to work in confined areas that are difficult to access, such as beneath a motor vehicle or under other heavy equipment where space is limited. One option when working in such a confined area is to lie recumbent on the floor or ground and slide beneath the vehicle. Maneuvering in a small space is difficult and frustration and can increase the time required to perform a requisite task. Furthermore, lying directly on and sliding over a hard, abrasive surface is not only uncomfortable, it can also result in injuries. Once under the vehicle, mobility is more limited and it is even more difficult to maneuver.

Due to the difficulty of maneuvering into and out of the confined work area, a mechanic is more likely to use an inappropriate tool because it is handy, rather than attempt to retrieve the proper tool at a distant location and out of reach. Consequently, the quality of work can be compromised.

Wheeled creepers comprising a platform supported on casters are known in the art. These enable a user, lying prone on the platform, to easily roll himself into and out of the confined work area beneath a vehicle. While such wheeled creepers can be beneficial,

they have several drawbacks. Using a wheeled platform, the profile of the mechanic is higher giving the mechanic less clearance under the vehicle and therefore diminishing maneuverability. It is desirable, therefore, to have a creeper with a low profile to give the user more room to maneuver. Although a lower profile can be created by using smaller casters with smaller wheels, such smaller wheels are less maneuverable when rolling over uneven surfaces or surface obstructions such as concrete seams. The need exists for a wheeled creeper having wheels that can maneuver easily over uneven surfaces and obstructions, yet have a low profile to enable the user to have easy access to confined areas.

While a wheeled creeper can make it easier to get underneath a motor vehicle or heavy equipment, the creeper is free to roll about freely while the mechanic is working. Such movement can be a deterrent to a user attempting to work from the creeper. Generally, a user can use his hands to brace the creeper against movement, but this is impractical when both hands are required for performing a task. Therefore, there is a need for a wheeled creeper having a brake means that is easily reachable for a prone user and that can be readily engaged to deter the creeper from rolling about freely.

A wheeled creeper must be large enough to accommodate the head and torso of a user and strong enough to support most of the user's body weight. However, when storing and/or transporting the creeper, a compact size is an important consideration. Consequently, there is a need for a wheeled creeper large enough to accommodate most users, and that can be disassembled for storing and/or transporting in a more compact form.

The present invention is a mechanic's creeper having brake means for releasably engaging a support surface in order to deter rolling movement of the creeper. The brake means can be easily accessed by the user when lying prone on the platform and readily engaged and disengaged in a confined space. The brake means can be engaged to deter rolling of the creeper along the floor. Conversely, the brake means can be disengaged, thereby releasing the creeper to roll freely when pushed or pulled across a supporting surface. The creeper has large wheels to enable the creeper to move easily across uneven surfaces. The wheels are accommodated by the frame while supporting the platform below the height of the wheels in order to provide a low profile for the creeper. Furthermore, the creeper can be broken down into smaller components to facilitate transporting and storing.

SUMMARY

The present invention is directed to a wheeled creeper for moveably supporting a user in a prone position in order that the user can maneuver into a confined space, such as beneath a motor vehicle or other equipment. The creeper has brake means for releasably engaging the support surface. The brake means can be selectively engaged to deter the creeper from rolling freely on a support surface and disengaged to allow the creeper to roll.

It is an object of the present invention to provide a wheeled creeper having a brake means for releasably engaging a support surface to hold the creeper steady.

It is a further object of the present invention to provide a low profile, wheeled creeper having casters that extend above the height of the platform.

It is a further object of the present invention to provide a creeper that can be readily disassembled for shipping or storage and assembled for use.

It is a further object of the present invention to provide a wheeled creeper with a braking device that frictionally engages a support surface in order to inhibit rolling.

It is a further object of the present invention to provide a wheeled creeper with a braking device that frictionally engages a plurality of locations on a support surface to deter rolling of the creeper.

It is a further object of the present invention to provide a braking device that can be readily accessed by a user lying prone on the wheeled creeper.

It is a further object of the present invention to provide a braking device that can be easily engaged and disengaged by a user lying prone on the wheeled creeper.

It is a further object of the present invention to provide a wheeled creeper having brake shoes on the forward and rearward ends of the creeper.

BRIEF DESCRIPTION OF DRAWINGS

Reference is made to the accompanying drawings in which are shown illustrative embodiments of the invention and from which novel features and advantages will be apparent.

Figure 1 is a top perspective view of a preferred embodiment of the mechanic's creeper of the present invention.

Figure 2 is a top perspective view of the mechanic's creeper of Figure 1 with the platform detached showing the braking device in the raised position.

Figure 3 is a top perspective view of the mechanic's creeper of Figure 1 with the platform removed, showing the braking device in the lowered position.

Figure 4 is a top perspective view of the mechanic's creeper of Figure 1 having the platform detached and the frame disassembled.

Figure 5 is a side view of the mechanic's creeper of Figure 1.

DETAILED DESCRIPTION

Referring to Figures 1 and 2, there is shown a wheeled creeper **1** having a platform **10** and a frame **20** all of which are supported on a plurality of casters **70**. The wheeled creeper **1** further includes a brake means for releasably engaging the support surface on which the creeper **1** is positioned and means for releasably connecting the portions.

The frame **20** has an upper side **21** and a lower side **22**. It also includes a central portion **30** flanked by first **40** and second **50** portions. Referring to Figures 3 and 4, the central portion **30** includes first **31** and second **32** struts which are spaced apart and extend parallel to each other.

The central portion **30** has a pair of ends, namely first **33** and second **35** ends. Each of the first **33** and second **35** ends of the central portion has a pair of sockets **37**. A socket **37** is located on each of the distal ends of the first **31** and second **32** struts. A plurality of end apertures **39** are disposed on the distal ends of each first **31** and second **32** strut and extend through a respective socket **37**.

Each of the first **40** and second **50** portions of the frame **20** includes a pair of legs **41, 51** and a crosspiece **42, 52**. On each first **40** and second **50** portion, the legs **41, 51** are attached by their proximal ends to the respective crosspiece **42, 52**, thereby giving each

portion **40, 50** a generally U-shape. Each of the distal ends of the legs **41, 51** are supported on a swivelable caster **70**.

The means for releasably connecting the portions attaches the first **40** and second **50** portions to the central portion **30** of the frame **20**. It comprises first **61** and second **62** connecting members. The first connecting member **61** comprises a pair of studs **63**. Each of the studs **63** of the first connecting member **61** includes a pair of through holes **64**. The first connecting member **61** also includes the sockets **37** and end apertures **39** on the first end of the central portion **30**.

Similarly, the second connecting member **62** comprises a pair of studs **65** with each stud **65** having a pair of through holes **66**. It also includes the sockets **37** and end apertures **39** on the second end **35** of the central portion **30**.

The casters **70** are swivelable and each includes a wheel **71,** a wheel mounting bracket **72** and a pivot bearing **73**. Each wheel **71** is rotatably mounted on a wheel mounting bracket **72**. The wheel mounting bracket **72** is secured by a pivot bearing **73** to the distal end of a respective leg **41, 51** so that the casters **70** can freely swivel about an axis **A** extending vertically to the wheel's axle **B**.

Referring to Figure 2, the platform **10** includes first **11** and second **12** sections. The sections **11, 12** of the platform **10** are cushioned by padding for a user's comfort. The first section **11** which is adapted to support the head of a user lying prone on the platform **10** is thicker than the second section **12** which is adapted to support the user's torso.

The brake means for releasably engaging the support surface comprises a braking device **80**. The braking device **80** includes a plurality of brake shoes and actuating means for moving the brake shoes into and out of engagement with the support surface. The

plurality of brake shoes includes first **81** and second **82** brake shoes. Each brake shoe **81, 82** is preferably formed by an elongated member **84** with a pair of brake pads **85** disposed along one surface thereof.

The actuating means for moving the brake shoes is a linkage **91** comprising first **94** and second **95** mounting rods and a tie rod **98** as shown in Figure 4. The first mounting rod **94** has a first lever **96** fixedly attached thereto and rotates with the first mounting rod **94**. Similarly, a second lever **97** is fixedly mounted on the second mounting rod **95** and the two rotate together when the linkage **91** is activated. The tie rod **98** extends between the first **96** and second **97** levers. The linkage **91** further includes a handle **92** and a biasing means for holding the brake means in a disengaged position. The biasing means comprises a coil spring **93** in the illustrated preferred embodiment, although other biasing elements such as an elastic band could be used instead.

The first **40**, second **50** and central **30** portions of the frame **20** are preferably tubular in cross section. Each of the tubular-shaped legs **41, 51** of the frame **20** is curvilinear along its length, as shown in Figure 5. The proximal ends of each leg **41, 51** is attached to the respective crosspiece **42,52** and the distal ends are each attached to a caster **70**. With their curvilinear shape, the legs **41, 51** can accommodate the differences in the height of the casters **70** at their distal ends and the height of the platform **10** at their proximal ends. The proximal ends are lower and therefore closer to the support surface than the distal ends so that the central portion **30** of the frame **20** and platform **10** are suspended above the supporting surface and below the top of the casters **70**. This arrangement lends a lower profile to the creeper **1** so that a user lying prone on the platform **10** can more easily fit into a confined space.

In the preferred embodiment of Figure 4, the legs **41, 51**, struts **31, 32** and crosspieces **42, 52** of the frame **20** are comprised of steel tubing. However, other suitable structural members such as angle beams and I-beams could be used in lieu of the tubing. In addition, other materials could be substituted for the steel, such as aluminum, plastic or composites.

On the central portion **30** of the frame **20**, the first **61** and second **62** connecting members releasably secure the first **40** and second **50** portions, respectively, to opposite ends of the central portion **30**. Consequently, the frame **20** can be broken down into smaller components for storing and/or transporting. By detaching the platform **10** and coil spring **93** from the frame **20,** releasing the first **61** and second **62** connecting members, and separating the first **40** and second **50** portions from the central portion **30,** the frame **20** can be disassembled.

The platform **10** is attached to the frame **20** by fasteners such that the bottom surface of the platform **10** is adjacent to the upper side **21** of the frame **20**, as shown in Figure 2. The fasteners comprise a plurality of frame attaching screws **13** that extend through the frame **20** and engage a bottom surface of the platform **10** to secure the platform **10** onto the frame **20** when the creeper is assembled. When assembled, the platform **10** overlays the central portion **30** and parts of the first **40** and second **50** portions. Furthermore, the platform **10** extends between the upwardly curving legs **41, 51** of the first **40** and second **50** portions.

Referring to Figure 4, the first **40** and second **50** portions of the frame **20** are releasably adjoined to the central portion **30** by the connecting members **61, 62**. The first connecting member **61** releasably attaches the first portion **40** to the first end **33** of the

central portion **30**. The second portion **50** is attached by the second connecting member **62** to the second end **35** of the central portion **30** and is opposite the first portion **40**.

Each of the crosspieces **42, 52** of the first **40** and second **50** portions has two ends, each of which are attached to the proximal ends of the respective legs **41, 51**. The studs **63** of the first connecting member **61** are mounted on the crosspiece **42** of the first portion **40**. Similarly, the studs **65** of the second connecting member **62** are mounted on the crosspiece **52** of the second portion **50**.

When the creeper **1** is assembled the studs **63** of the first portion **40** are positioned respectively within the sockets **37** on the first end of the central portion **30**. The studs **65** on the second portion **50** are disposed within the sockets **37** on the second end **35** of the central portion **30**. With the studs **63, 65** so located, the end apertures **39** on each of the first **31** and second **32** struts are aligned with the respective through holes **64, 66** in the inserted stud **63, 65** and a pin **68** extends through each of the respective aligned sets of end apertures **39** and through holes **64, 66**.

The creeper **1** comprises an assembled and a disassembled configuration. As shown in Figures 1 and 2, the first **40** and second **50** portions of the assembled frame **20** are attached to the central portion **30** and the platform **10** is connected to the frame **20** in the assembled configuration.

In the disassembled configuration of Figure 4, the platform **10** is detached from the frame **20**, the coil spring **93** is detached from the frame, and the first **40** and second **50** portions are detached from the central portion **30**.

To detach the platform **10** from the frame **20**, the attaching screws **13** are withdrawn and the platform **10** is lifted from the frame **20**. The first **61** and second **62**

connecting members are disconnected by removing the pins **68** from the ends of both struts **31, 32** and pulling the respective first **40** and second **50** portions away from the central portion **30** to thereby remove the studs **63, 65** from the respective sockets **37**.

The central portion **30** of the frame **20** is flanked by the first portion **40** on its first end **33** and by the second portion **50** on its second end **35**. The legs **41, 51** of each portion **40, 50** extend upwardly and outwardly from their respective crosspieces **42, 52.** With the creeper **1** resting on a support surface, the distal ends of the legs **41, 51** are positioned farther above the support surface than the proximal ends. Consequently, the platform **20** is lower and therefore nearer to the support surface than the tops of the casters **70**.

The braking device **80** includes engaged and disengaged positions. The brake shoes **81, 82** are raised and lowered to define the disengaged and engaged positions, respectively. In response to the actuating means, the first **81** and second **82** brake shoes move together and therefore generally maintain the same orientation with respect to the frame **20**.

When lowered in the engaged position as shown in Figure 3, the brake shoes **81, 82** extend out and down from the frame **20** so that the brake pads **85** engage the support surface. In this position, movement of the creeper **1** is deterred.

In the disengaged position, the brake shoes **81, 82** are raised to a location adjacent the frame **20** in which the brake pads **85** are lifted up away from the support surface and disengaged therefrom.

The elongated members **84** of the brake shoes **81, 82** and actuating means are preferably made of steel. However, other suitable materials could be used instead, including aluminum and other metals. Alternatively, the elongated members **84** could

comprise other materials such as wood or plastic that are suited for such purpose. The brake pads **85** are preferably made of rubber or other resilient, durable materials including nylon and plastic.

The linkage **91** moves the brake shoes **81,82** between the engaged position in Figure 3 and the disengaged position in Figure 4. The handle **92** directly rotates the second mounting rod **95**. When the second mounting rod **95** is rotated, the second lever **97** rotates also. Rotation of the second lever **97** shifts the tie rod **98** which in turn moves the first lever **96**. Movement of the first lever **96** activates rotational movement of the first mounting rod **94**. Since the first **81** and second **82** brake shoes are fixedly mounted on the respective first **94** and second **95** mounting rods, the brake shoes **81, 82** pivot with the rotational movement of the mounting rods **94, 95**. Consequently, by manipulating the handle **92**, a user can move the braking device **80** between the engaged and disengaged positions. The coil spring **93** biases the braking device **80** in the disengaged position.

With the brake pads **85** frictionally engaging the support surface, the creeper **1** is deterred from rolling freely across the support surface. It should be appreciated that when the braking device **80** is engaged, contact between at least one or more of the wheels and the support surface is decreased.

The braking device **80** is supported on the frame **20**. The first **94** and second **95** mounting rods are mounted on and extend between the struts **31, 32** of the central portion **30**. One end of each of the first **94** and second **95** mounting rods is rotatably mounted on the first strut **31**, and the other end of the rods **94, 95** is rotatably mounted on the second strut **32**. The first lever **96** is fixedly attached to one end of the first mounting rod **94**. The second lever **97** is fixedly attached to one end of the second mounting rod **95**. One end of

the tie rod **98** is pivotally mounted to the first lever **96** and the opposite end of the tie rod **98** is pivotally mounted to the second lever **97**. The handle **92** is fixedly attached to the second mounting rod **95**. Both the first **96** and second **97** levers are disposed outside of the frame **20** and are on the same side of the frame **20** as the handle **92**.

The first brake shoe **81** is fixedly secured to the first mounting rod **94** and disposed between the first **31** and second **32** struts of the frame **20**. Similarly, the second brake shoe **82** is fixedly attached to the second mounting rod **95** and is disposed between the struts **31, 32**. A pair of brake pads **85** is mounted on a surface of each of the brake shoes **81, 82**.

The coil spring **93** is elongated and is further characterized by having two ends. One end of the coil spring **93** is removably attached to the first portion **40** of the frame **20** proximate the first lever **96**. The other end of the spring **93** is attached to the end of the first tie rod **98** that engages the first lever **96**.

When the handle **92** is rotated, the second mounting rod **95** and second lever **97** are rotated in unison therewith. As the second lever **97** rotates, the tie rod **98** shifts generally linearly, thereby rotating the first lever **96** and hence the first mounting rod **94**. The first **81** and second **82** brake shoes pivot with the rotation of the first **94** and second **95** mounting rods.

The handle **92** is positioned to one side of the frame **20** near an end of the platform **10** adjacent to the second portion **50** and is readily accessible to the outstretched arm of a user lying prone on the platform **10**. The accessibility of the handle **92** renders it easy to manipulate when the user is lying on the creeper **1**. With the brake shoes **81, 82** mounted

between the first **31** and second **32** struts of the central portion **30**, the shoes **81, 82** are generally nestled within the frame **20** when withdrawn in the disengaged position.

The creeper **1** is generally used on a support surface, such as a floor or the ground. Preferably, the user lies on the cushioned platform **10** and pushes and/or pulls himself and the creeper **1** into a desired position. Once in position, the braking device **80** is engaged to inhibit rolling of the creeper **1**. To change locations, the braking device **80** is disengaged and the user rolls the creeper **1** to another location.

To engage the braking device **80**, the handle **92** is rotated in a counterclockwise direction, thereby lowering the brake shoes **81, 82**. The handle **92** is rotated until the brake pads **85** are directly beneath the elongated member **84** and in direct engagement with the support surface. In order to move the brake shoes **81, 82** into the engaged position, an initial force great enough to overcome the bias of the coil spring **93** must be applied to the handle **92**. It should be noted that this counterclockwise direction of rotation is preferred. However, the braking device **80** could be assembled such that the rotation would be clockwise, if desired.

To disengage the braking device, the handle **92** is rotated clockwise or in a reverse direction to that required to engage the braking device **80** and the respective brake shoes **81, 82** are pivoted away from the supporting surface and into the disengaged position, leaving the creeper **1** free to roll across the support surface.

A preferred device of the present invention is a wheeled creeper with a braking device that can be readily engaged to inhibit unwanted movement of the creeper or disengaged to allow the creeper to roll freely on a support surface. The braking device is readily accessible to a user lying on the creeper and can be easily engaged and disengaged

using the handle extending from the side of the frame. With the platform lower than the height of the wheels, the creeper has a low profile yet maintains easy maneuverability on uneven support surfaces due to the height and position of the wheels. Furthermore, the frame can be readily broken down into smaller components to facilitate storing or transporting the creeper.

Although the present invention has been described in considerable detail with reference to certain preferred versions thereof, other versions are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred versions contained herein.